

Contract N.: **XXX**
 Client: **XXX**
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 Project: **XXX**

Piping Material Specification			
Spec. No. : SP-50-03			
Class : A2			
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Appr. by: **XXX** Issued for: **XXX** Checked by: **XXX**
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Service:
 PROCESS FLUIDS,
 (FOR BRANCH CONNECTIONS SEE ATTACHMENT "A")

Gaskets : SPIRAL WOUND GRAPHITE / S.S.304	Rating/Facing : CL150 RF	Corrosion : 0.125" (3.0MM) See Note 7	Facing Finish : ASME B16.5	Block Valve Trim : API TRIM No. 8	Weld Quality Insp : PER JOB SPEC -52A1	Stress Relief : NO (See Note 8)
Materials : CARBON STEEL PIPING & VALVES (SEE GENERAL NOTES 1 THRU 26)			Temp/Press Limits : 285 PSIG AT -20F TO 100F ; 230 PSIG AT 300F ; 170 F IG AT 500F ; 110 PSIG AT 700F ; 80 PSIG AT 800F ; 65 PSIG AT 850F UPSE1MAX. TEMP. (THUR 24") (30"-36"- 260 PSIG AT 100F) (48"- 50 PSIG AT 350F)(See Note 9)			

Item Name	Range		Det	Rev
Unique/Client* Code	from	to		
GATE VALVE 512GQ0004	1/2"	2"	GAT	
Body Mat'l :ASTM A105 Codes : API 602 Body constr. :WELDED BONNET Rating : 800# Ends : S.W. Trim constr. :PLAIN SOLID WEDGE, O.S.& Y. Trim Mat'l :API TRIM N.8 (STELLITE BODY SEATS) Bolt Mat'l :PER API STANDARD 602. Packing : GRAPHITE PACKING . Note : GENERAL NOTES FOR VALVES: SEE JOB SPEC 59B9 Operator :HANDWHEEL				
GATE VALVE 511GA0001	3"	24"	GAT	
Body Mat'l :ASTM A216 GR.WCB Codes : API 600 Body constr. :BOLTED BONNET Rating : 150# Ends : RF Face finish :ASME B16.5 Trim constr. :PLAIN OR FLEXIBLE SOLID WEDGE, O.S.& Y. Trim Mat'l :API TRIM N.8 (STELLITE BODY SEATS) Bolt Mat'l :PER API STANDARD 600. Gasket Mat'l :PER API STANDARD 600. Packing : GRAPHITE PACKING . Note : GENERAL NOTES FOR VALVES: SEE JOB SPEC 59B9 Operator :HANDWHEEL				

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GATE VALVE N **8"** **24"** **GATN** [*]
 511GA0002

Body Matl : ASTM A216 GR.WCB [*]
 Codes : API 600 [*]
 Body constr. : BOLTED BONNET [*]
Rating : 150# [*]
Ends : RF [*]
 Face finish : ASME B16.5 [*]
 Trim constr. : PLAIN OR FLEXIBLE SOLID WEDGE, O.S. & Y. [*]
 Trim Matl : API TRIM N.8 (STELLITE BODY SEATS) [*]
 Bolt Matl : PER API STANDARD 600. [*]
 Gasket Matl : PER API STANDARD 600. [*]
 Packing : GRAPHITE PACKING . [*]
 Note : GENERAL NOTES FOR VALVES: SEE JOB SPEC 59B9 [*]
 Operator : GEAR OP (N) PINION SHAFT AT RIGHT ANGLE TO RUN OF VALVE. [*]

GATE VALVE N **30"** **36"** **GATN**
 511GA0011

Body Matl : ASTM A216 GR.WCB
 Codes : API 600 (ASME B16.47 "B" FOR FLANGE DIMENSIONS ABOVE 24")
 Body constr. : BOLTED BONNET
Rating : 150#
Ends : RF
 Face finish : ASME B16.5
 Trim constr. : PLAIN OR FLEXIBLE SOLID WEDGE, O.S. & Y.
 Trim Matl : API TRIM N.8 (STELLITE BODY SEATS)
 Bolt Matl : PER API STANDARD 600.
 Gasket Matl : PER API STANDARD 600.
 Packing : GRAPHITE PACKING .
 Note : GENERAL NOTES FOR VALVES: SEE JOB SPEC 59B9
 Operator : GEAR OP (N) PINION SHAFT AT RIGHT ANGLE TO RUN OF VALVE.

GATE V.FP **1/2"** **2"** **GAFF**
 512GA0001

Body Matl : ASTM A105
 Codes : API 602
 Body constr. : BOLTED BONNET, FULL PORT.
Rating : 150#
Ends : RF
 Face finish : ASME B16.5
 Trim constr. : PLAIN SOLID WEDGE, FULL PORT, O.S. & Y.
 Trim Matl : API TRIM N.8 (STELLITE BODY SEATS)
 Bolt Matl : PER API STANDARD 602.
 Gasket Matl : PER API STANDARD 602.
 Packing : GRAPHITE PACKING .
 Note : GENERAL NOTES FOR VALVES: SEE JOB SPEC 59B9
 Operator : HANDWHEEL

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GATE V.FP **1/2"** **2"** **GAFP1**
 512GB0002

Body Mat'l :ASTM A105
 Codes : API 602
 Body constr. :BOLTED BONNET, FULL PORT.
Rating : 300#
Ends : RF
 Face finish :ASME B16.5
 Trim constr. :PLAIN SOLID WEDGE, FULL PORT, O.S. & Y.
 Trim Mat'l :API TRIM N.8 (STELLITE BODY SEATS)
 Bolt Mat'l :PER API STANDARD 602.
 Gasket Mat'l :PER API STANDARD 602.
 Packing : GRAPHITE PACKING .
 Note : GENERAL NOTES FOR VALVES: SEE JOB SPEC 59B9
 Operator :HANDWHEEL

GATE V.FP **1/2"** **2"** **GAFPS**
 512GG0003

Body Mat'l :ASTM A105
 Codes : API 602
 Body constr. :WELDED BONNET, FULL PORT.
Rating : 800#
Ends : S.W.
 Trim constr. :PLAIN SOLID WEDGE, FULL PORT, O.S. & Y.
 Trim Mat'l :API TRIM N.8 (STELLITE BODY SEATS)
 Bolt Mat'l :PER API STANDARD 602.
 Packing : GRAPHITE PACKING .
 Note : GENERAL NOTES FOR VALVES: SEE JOB SPEC 59B9
 Operator :HANDWHEEL

DR/VE VALVE **1/2"** **2"** **GAD**
 512EQ0007

Body Mat'l :ASTM A105
 Codes : API 602
 Body constr. :EXTENDED BODY, WELDED BONNET.
Rating : 800#
Ends : MALE PE x FEMALE NPT
 Trim constr. :PLAIN SOLID WEDGE, O.S.& Y.
 Trim Mat'l :API TRIM N.8 (STELLITE BODY SEATS)
 Bolt Mat'l :PER API STANDARD 602.
 Packing : GRAPHITE PACKING .
 Note : GENERAL NOTES FOR VALVES: SEE JOB SPEC 59B9
 Operator :HANDWHEEL

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INSTR. VALVE **1/2"** **3/4"** **GAI**
 512EQ0009

Body Mat'l : ASTM A105
 Codes : API 602
 Body constr. : EXTENDED BODY, WELDED BONNET.
Rating : 800#
Ends : MALE NPT x FEMALE NPT
 Trim constr. : PLAIN SOLID WEDGE, O.S.& Y.
 Trim Mat'l : API TRIM N.8 (STELLITE BODY SEATS)
 Bolt Mat'l : PER API STANDARD 602.
 Packing : GRAPHITE PACKING .
 Note : GENERAL NOTES FOR VALVES: SEE JOB SPEC 59B9
 Operator : HANDWHEEL

GATE V.SWxTH **1/2"** **2"** **GATST**
 512GQ0002

Body Mat'l : ASTM A105
 Codes : API 602
 Body constr. : WELDED BONNET
Rating : 800#
Ends : S.W. x THDD
 Trim constr. : PLAIN SOLID WEDGE, O.S.& Y.
 Trim Mat'l : API TRIM N.8 (STELLITE BODY SEATS)
 Bolt Mat'l : PER API STANDARD 602.
 Packing : GRAPHITE PACKING .
 Note : GENERAL NOTES FOR VALVES: SEE JOB SPEC 59B9
 Operator : HANDWHEEL

GATE V. FLG. **1/2"** **2"** **GAF**
 512GA0005

Body Mat'l : ASTM A105
 Codes : API 602
 Body constr. : BOLTED BONNET
Rating : 150#
Ends : RF
 Face finish : ASME B16.5
 Trim constr. : PLAIN SOLID WEDGE, O.S.& Y.
 Trim Mat'l : API TRIM N.8 (STELLITE BODY SEATS)
 Bolt Mat'l : PER API STANDARD 602.
 Gasket Mat'l : PER API STANDARD 602.
 Packing : GRAPHITE PACKING .
 Note : GENERAL NOTES FOR VALVES: SEE JOB SPEC 59B9
 Operator : HANDWHEEL

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GATE V. FLG. **1/2" 2"** **GAF1**
 512GB0005

Body Mat'l :ASTM A105
 Codes : API 602
 Body constr. :BOLTED BONNET
Rating : 300#
Ends : RF
 Face finish :ASME B16.5
 Trim constr. :PLAIN SOLID WEDGE, O.S. & Y.
 Trim Mat'l :API TRIM N.8 (STELLITE BODY SEATS)
 Bolt Mat'l :PER API STANDARD 602.
 Gasket Mat'l :PER API STANDARD 602.
 Packing : GRAPHITE PACKING .
 Note : GENERAL NOTES FOR VALVES: SEE JOB SPEC 59B9
 Operator :HANDWHEEL

GATE V. FLG. **3" 24"** **GAF1**
 511GB0002

Body Mat'l :ASTM A216 GR.WCB
 Codes : API 600
 Body constr. :BOLTED BONNET
Rating : 300#
Ends : RF
 Face finish :ASME B16.5
 Trim constr. :PLAIN OR FLEXIBLE SOLID WEDGE, O.S.& Y.
 Trim Mat'l :API TRIM N.8 (STELLITE BODY SEATS)
 Bolt Mat'l :PER API STANDARD 600.
 Gasket Mat'l :PER API STANDARD 600.
 Packing : GRAPHITE PACKING .
 Note : GENERAL NOTES FOR VALVES: SEE JOB SPEC 59B9
 Operator :HANDWHEEL

GLOBE VALVE **1/2" 2"** **GLO**
 512DQ0005

Body Mat'l :ASTM A105
 Codes : API 602 / ASME B16.34
 Body constr. :WELDED BONNET
Rating : 800#
Ends : S.W.
 Trim constr. :LOOSE DISC, O.S. & Y.
 Trim Mat'l :API TRIM N.8 (STELLITE BODY SEATS)
 Bolt Mat'l :PER API STANDARD 602.
 Packing : GRAPHITE PACKING .
 Note : GENERAL NOTES FOR VALVES: SEE JOB SPEC 59B9
 Operator :HANDWHEEL

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GLOBE VALVE 3" 8" **GLO**
 511DA0002

Body Mat'l :ASTM A216 GR.WCB
 Codes : API 600 / ASME B16.34
 Body constr. :BOLTED BONNET
Rating : 150#
Ends : RF
 Face finish :ASME B16.5
 Trim constr. :PLUG DISC TYPE, O.S. & Y.
 Trim Mat'l :API TRIM N.8 (STELLITE BODY SEATS)
 Bolt Mat'l :PER API STANDARD 600.
 Gasket Mat'l :PER API STANDARD 600.
 Packing : GRAPHITE PACKING .
 Note : GENERAL NOTES FOR VALVES: SEE JOB SPEC 59B9
 Operator :HANDWHEEL

CHECK VALVE 1/2" 2" **CHE**
 512CQ0003

Body Mat'l :ASTM A105
 Codes : API 602 / ASME B16.34
 Body constr. :BOLTED CAP
Rating : 800#
Ends : S.W.
 Trim constr. :PISTON TYPE,T-BODY,HORIZONTAL INSTALLATION
 Trim Mat'l :API TRIM N.8 (STELLITE BODY SEATS)
 Bolt Mat'l :PER API STANDARD 602.
 Gasket Mat'l :PER API STANDARD 602.
 Note : GENERAL NOTES FOR VALVES: SEE JOB SPEC 59B9

CHECK VALVE 3" 24" **CHE**
 511CA0002

Body Mat'l :ASTM A216 GR.WCB
 Codes : API 600 / ASME B16.34
 Body constr. :BOLTED CAP
Rating : 150#
Ends : RF
 Face finish :ASME B16.5
 Trim constr. :SWING TYPE, HORIZONTAL & VERTICAL INSTALLATION
 Trim Mat'l :API TRIM N.8 (STELLITE BODY SEATS)
 Bolt Mat'l :PER API STANDARD 600.
 Gasket Mat'l :PER API STANDARD 600.
 Note : GENERAL NOTES FOR VALVES: SEE JOB SPEC 59B9

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<u>KNIFE VALVE</u>	<u>30"</u>	<u>36"</u>		KNF	[*]
<u>511KA0001</u>					
			Body Matl :ASTM A216 GR.WCB		[*]
			Codes : API 600 (ASME B16.47 "B" FOR FLANGE DIMENSIONS ABOVE 24")		[*]
			Body constr. :BOLTED BONNET		[*]
			Rating : 150#		[*]
			Ends : RF		[*]
			Face finish :ASME B16.5		[*]
			Shaft const. :METAL TO METAL SEATS		[*]
			Shaft Matl :SS.316 KNIFE, SS.410 STEM, AND STELLITE FACED SEAT.		[*]
			Packing : GRAPHITE PACKING .		[*]
			Note : GENERAL NOTES FOR VALVES: SEE JOB SPEC 59B9. VENDOR TO FURNISH B7 CAP SCREWS.		[*]
			Operator : GEAR OP (N) PINION SHAFT AT RIGHT ANGLE TO RUN OF VALVE.		[*]

PIPE A/G	1/2"	1-1/2"	SCH. 160		PIP
541SG0003					
			Material : KILLED C.S. ASTM A106 GR.B		
			Manufact. :SMLS		
			Codes : ASME B36.10		
			Note : PIPE SHALL COMPLY WITH JOB SPEC 52A2		
			Ends : P.E.		

PIPE A/G	2"	2"	SCH. XS		PIP
541SG0001					
			Material : KILLED C.S. ASTM A106 GR.B		
			Manufact. :SMLS		
			Codes : ASME B36.10		
			Note : PIPE SHALL COMPLY WITH JOB SPEC 52A2		
			Ends : P.E.		

PIPE A/G	3"	24"	SCH. STD		PIP
541SG0002					
			Material : KILLED C.S. ASTM A106 GR.B		
			Manufact. :SMLS		
			Codes : ASME B36.10		
			Note : PIPE SHALL COMPLY WITH JOB SPEC 52A2		
			Ends : B.E.		

PIPE A/G	30"	36"	SCH. STD		PIP
541Wd0001					
			Material : C.S. ASTM A672 GR.C70 CL.12		
			Manufact. :E.F.W.		
			Codes : ASME B36.10		
			Note : PIPE SHALL COMPLY WITH JOB SPEC 52A2		
			Ends : B.E.		

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<u>PIPE A/G</u>	<u>48"</u>	<u>48"</u>	<u>SCH. XS</u>	<u>PIP</u>	[*]
<u>541Wd0002</u>					
			Material : C.S. ASTM A672 GR.C70 CL.12		[*]
			Manufact. : E.F.W.		[*]
			Codes : ASME B36.10		[*]
			Note : PIPE SHALL COMPLY WITH JOB SPEC 52A2		[*]
			Ends : B.E.		[*]

<u>PIPE A/G</u>	<u>3"</u>	<u>24"</u>	<u>SCH. STD</u>	<u>PIP2</u>	[*]
<u>541SGAAAC</u>					
			Material : KILLED C.S. ASTM A106 GR.B		[*]
			Manufact. : SMLS		[*]
			Coating : PAINTING SYSTEM NO. 2, PER VALERO JOB SPEC NO. SP-80-02.		[*]
			Codes : ASME B36.10		[*]
			Note : PIPE SHALL COMPLY WITH JOB SPEC 52A2		[*]
			Ends : B.E.		[*]

<u>PIPE A/G</u>	<u>2"</u>	<u>2"</u>	<u>SCH. XS</u>	<u>PIP8</u>	
<u>541SGAAAF</u>					
			Material : KILLED C.S. ASTM A106 GR.B		
			Manufact. : SMLS		
			Coating : PAINTING SYSTEM NO. 8, PER VALERO JOB SPEC NO. SP-80-02.		
			Codes : ASME B36.10		
			Note : PIPE SHALL COMPLY WITH JOB SPEC 52A2		
			Ends : P.E.		

<u>PIPE A/G</u>	<u>3"</u>	<u>24"</u>	<u>SCH. STD</u>	<u>PIP8</u>	
<u>541SGAAAE</u>					
			Material : KILLED C.S. ASTM A106 GR.B		
			Manufact. : SMLS		
			Coating : PAINTING SYSTEM NO. 8, PER VALERO JOB SPEC NO. SP-80-02.		
			Codes : ASME B36.10		
			Note : PIPE SHALL COMPLY WITH JOB SPEC 52A2		
			Ends : B.E.		

<u>PIPE A/G</u>	<u>2"</u>	<u>2"</u>	<u>SCH. 160</u>	<u>PIPP</u>	
<u>541SG0003</u>					
			Material : KILLED C.S. ASTM A106 GR.B		
			Manufact. : SMLS		
			Codes : ASME B36.10		
			Note : PIPE SHALL COMPLY WITH JOB SPEC 52A2		
			Ends : P.E.		

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NIPPLES **1/2"** **2"** **SCH. XXS** **NIP**

561NC0002

Material : C.S. ASTM A106 GR.B
 Codes : ASME B36.10
 Note : FITTINGS SHALL COMPLY WITH JOB SPEC 52A2
 Ends : T.O.E.

FLANGE **1/2"** **1-1/2"** **SCH. 160** **FLG**

561NB0008

Type : S.W.
 Material : ASTM A105
 Codes : ASME B16.5
Rating : 150#
 Ends : RF
 Note : FLANGES SHALL COMPLY WITH JOB SPECS 50A2 AND 52A2

FLANGE **2"** **2"** **SCH. XS** **FLG**

561NB0004

Type : S.W.
 Material : ASTM A105
 Codes : ASME B16.5
Rating : 150#
 Ends : RF
 Note : FLANGES SHALL COMPLY WITH JOB SPECS 50A2 AND 52A2

FLANGE **3"** **24"** **SCH. STD** **FLG**

561WB0002

Type : W.N.
 Material : ASTM A105
 Codes : ASME B16.5
Rating : 150#
 Ends : RF
 Note : FLANGES SHALL COMPLY WITH JOB SPECS 50A2 AND 52A2

FLANGE W.N. **30"** **36"** **SCH. STD** **FWN7A**

561WB0004

Type : W.N.
 Material : ASTM A105
 Codes : ASME B16.47 "A" (EX MSS-SP44)
Rating : 150#
 Ends : RF
 Note : FLANGES SHALL COMPLY WITH JOB SPECS 50A2 AND 52A2

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FLANGE W.N. 561WB0003	30"	36"	SCH. STD	FWN7B
Type: W.N. Material: ASTM A105 Codes: ASME B16.47 "B" (EX API-605) Rating: 150# Ends: RF Note: FLANGES SHALL COMPLY WITH JOB SPECS 50A2 AND 52A2				
<u>FLANGE W.N.</u> <u>561WB0049</u>	<u>48"</u>	<u>48"</u>	SCH. XS	FWN7B [*]
Type: W.N. Material: ASTM A105 Codes: ASME B16.47 "B" (EX API-605) Rating: 150# Ends: RF Note: FLANGES SHALL COMPLY WITH JOB SPECS 50A2 AND 52A2				
FLANGE 561NB0006	1/2"	1-1/2"	SCH. 160	FL1
Type: S.W. Material: ASTM A105 Codes: ASME B16.5 Rating: 300# Ends: RF Note: FLANGES SHALL COMPLY WITH JOB SPECS 50A2 AND 52A2				
FLANGE 561NB0005	2"	2"	SCH. XS	FL1
Type: S.W. Material: ASTM A105 Codes: ASME B16.5 Rating: 300# Ends: RF Note: FLANGES SHALL COMPLY WITH JOB SPECS 50A2 AND 52A2				
FLANGE 561WB0005	3"	24"	SCH. STD	FL1
Type: W.N. Material: ASTM A105 Codes: ASME B16.5 Rating: 300# Ends: RF Note: FLANGES SHALL COMPLY WITH JOB SPECS 50A2 AND 52A2				

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FLANGE F.F. **1/2"** **1-1/2"** **SCH. 160** **FLGFF**
 561NB0007

Type : S.W.
 Material : ASTM A105
 Codes : ASME B16.5
Rating : 150#
Ends : FF
 Note : FLANGES SHALL COMPLY WITH JOB SPECS 50A2 AND 52A2

FLANGE F.F. **2"** **2"** **SCH. XS** **FLGFF**
 561NB0003

Type : S.W.
 Material : ASTM A105
 Codes : ASME B16.5
Rating : 150#
Ends : FF
 Note : FLANGES SHALL COMPLY WITH JOB SPECS 50A2 AND 52A2

FLANGE F.F. **3"** **24"** **SCH. STD** **FLGFF**
 561WB0001

Type : W.N.
 Material : ASTM A105
 Codes : ASME B16.5
Rating : 150#
Ends : FF
 Note : FLANGES SHALL COMPLY WITH JOB SPECS 50A2 AND 52A2

BLIND FLANGE **1/2"** **24"** **FBL**
 561BB0001

Material : ASTM A105
 Codes : ASME B16.5
Rating : 150#
Ends : RF
 Note : FLANGES SHALL COMPLY WITH JOB SPECS 50A2 AND 52A2

BLIND F.47/A **30"** **36"** **FBL7A**
 561BB0003

Material : ASTM A105
 Codes : ASME B16.47 "A" (EX MSS-SP44)
Rating : 150#
Ends : RF
 Note : FLANGES SHALL COMPLY WITH JOB SPECS 50A2 AND 52A2

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BLIND F.47/B **30"** **36"** **FBL7B**
 561BB0002

Material : ASTM A105
 Codes : ASME B16.47 "B" (EX API-605)
Rating : 150#
Ends : RF
 Note : FLANGES SHALL COMPLY WITH JOB SPECS 50A2 AND 52A2

ORIFICE FLG **2"** **2"** **SCH. XS** **FTR**
 561CB0007

Material : ASTM A105
 Component : ORIFICE FLANGE SET, WELD NECK TYPE
 Codes : ASME B16.36
Rating : 300#
Ends : RF
 Hole Tape : N.2 HOLES 180 DEGREES 1/2" S.W.
 Note : WITHOUT BOLTS AND GASKETS. FLANGES SHALL COMPLY WITH JOB SPECS 50A2, 52A2, AND 57B12 (JACK SCREWS).

ORIFICE FLG **3"** **16"** **SCH. STD** **FTR**
 561CB0008

Material : ASTM A105
 Component : ORIFICE FLANGE SET, WELD NECK TYPE
 Codes : ASME B16.36
Rating : 300#
Ends : RF
 Hole Tape : N.2 HOLES 180 DEGREES 1/2" S.W.
 Note : WITHOUT BOLTS AND GASKETS. FLANGES SHALL COMPLY WITH JOB SPECS 50A2, 52A2, AND 57B12 (JACK SCREWS).

ORIFICE FLG **2"** **2"** **SCH. XS** **FTR**
 561CB0009

Material : ASTM A105
 Component : ORIFICE FLANGE SET, WELD NECK TYPE
 Codes : ASME B16.36
Rating : 300#
Ends : RF
 Hole Tape : N.4 HOLES 90 DEGREES 1/2" S.W.
 Note : USE ONLY FOR SPECIAL INSTR. CONNECTIONS. WITHOUT BOLTS AND GASKETS. FLANGES SHALL COMPLY WITH JOB SPECS 50A2, 52A2, AND 57B12 (JACK SCREWS).

* Client codes only, not including sizes

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ORIFICE FLG **3"** **16"** **SCH. STD** **FTRI**
 561CB0010

Material : ASTM A105
 Component : ORIFICE FLANGE SET, WELD NECK TYPE
 Codes : ASME B16.36
Rating : 300#
Ends : RF
 Hole Tape : N.4 HOLES 90 DEGREES 1/2" S.W.
 Note : USE ONLY FOR SPECIAL INSTR. CONNECTIONS. WITHOUT BOLTS AND GASKETS. FLANGES SHALL COMPLY WITH JOB SPECS 50A2, 52A2, AND 57B12 (JACK SCREWS).

90 ELBOW **1/2"** **1-1/2"** **90E**
 551HB0010

Material : C.S. ASTM A105
 Component : 90 DEGREES ELBOWS
 Codes : ASME B16.11
Rating : 6000#
Ends : S.W.
 Note : FITTINGS SHALL COMPLY WITH JOB SPEC 52A2

90 ELBOW **2"** **2"** **90E**
 551HB0001

Material : C.S. ASTM A105
 Component : 90 DEGREES ELBOWS
 Codes : ASME B16.11
Rating : 3000#
Ends : S.W.
 Note : FITTINGS SHALL COMPLY WITH JOB SPEC 52A2

90 ELBOW **3"** **24"** **SCH. STD** **90E**
 551EF0001

Material : C.S. ASTM A234 WPB
 Component : 90 DEGREES LONG RADIUS
 Codes : ASME B16.9
 Manufact. : SMLS
Ends : B.W.
 Note : FITTINGS SHALL COMPLY WITH JOB SPEC 52A2

90 ELBOW **30"** **36"** **SCH. STD** **90E**
 551EF0002

Material : C.S. ASTM A234 WPB
 Component : 90 DEGREES LONG RADIUS
 Codes : ASME B16.9
 Manufact. : WELDED
Ends : B.W.
 Note : FITTINGS SHALL COMPLY WITH JOB SPEC 52A2

* Client codes only, not including sizes

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90 ELBOW <i>551EF0080</i>	48"	48"	SCH. XS	90E [*]
Material : C.S. ASTM A234 WPB Component : 90 DEGREES LONG RADIUS Codes : ASME B16.9 Manufact. : WELDED Ends : B.W. Note : FITTINGS SHALL COMPLY WITH JOB SPEC 52A2				[*] [*] [*] [*] [*] [*]
45 ELBOW <i>551HB0011</i>	1/2"	1-1/2"		45E
Material : C.S. ASTM A105 Component : 45 DEGREES ELBOWS Codes : ASME B16.11 Rating : 6000# Ends : S.W. Note : FITTINGS SHALL COMPLY WITH JOB SPEC 52A2				
45 ELBOW <i>551HB0002</i>	2"	2"		45E
Material : C.S. ASTM A105 Component : 45 DEGREES ELBOWS Codes : ASME B16.11 Rating : 3000# Ends : S.W. Note : FITTINGS SHALL COMPLY WITH JOB SPEC 52A2				
45 ELBOW <i>551EF0003</i>	3"	24"	SCH. STD	45E
Material : C.S. ASTM A234 WPB Component : 45 DEGREES LONG RADIUS Codes : ASME B16.9 Manufact. : SMLS Ends : B.W. Note : FITTINGS SHALL COMPLY WITH JOB SPEC 52A2				
45 ELBOW <i>551EF0004</i>	30"	36"	SCH. STD	45E
Material : C.S. ASTM A234 WPB Component : 45 DEGREES LONG RADIUS Codes : ASME B16.9 Manufact. : WELDED Ends : B.W. Note : FITTINGS SHALL COMPLY WITH JOB SPEC 52A2				

* Client codes only, not including sizes

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45 ELBOW 551EF0087	48"	48"	SCH. XS	45E [*]
Material : C.S. ASTM A234 WPB Component : 45 DEGREES LONG RADIUS Codes : ASME B16.9 Manufact. : WELDED Ends : B.W. Note : FITTINGS SHALL COMPLY WITH JOB SPEC 52A2				[*] [*] [*] [*] [*]
CAP 551HB0012	1/2"	1-1/2"		CAP
Material : C.S. ASTM A105 Component : CAP Codes : ASME B16.11 Rating : 6000# Ends : S.W. Note : FITTINGS SHALL COMPLY WITH JOB SPEC 52A2				
CAP 551HB0003	2"	2"		CAP
Material : C.S. ASTM A105 Component : CAP Codes : ASME B16.11 Rating : 3000# Ends : S.W. Note : FITTINGS SHALL COMPLY WITH JOB SPEC 52A2				
CAP 551EF0006	3"	24"	SCH. STD	CAP
Material : C.S. ASTM A234 WPB Component : CAP Codes : ASME B16.9 Manufact. : SMLS Ends : B.W. Note : FITTINGS SHALL COMPLY WITH JOB SPEC 52A2				
CAP 551EF0005	30"	36"	SCH. STD	CAP
Material : C.S. ASTM A234 WPB Component : CAP Codes : ASME B16.9 Manufact. : WELDED Ends : B.W. Note : FITTINGS SHALL COMPLY WITH JOB SPEC 52A2				

* Client codes only, not including sizes

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PLUG	1/2"	2"		ROU
551HB0004				
Material : C.S. ASTM A105				
Component : PLUG ROUND BAR STOCK L=75 MM (3")				
Codes : ASME B16.11				
Ends : SCRD				
Note : FITTINGS SHALL COMPLY WITH JOB SPEC 52A2				

PLUG ORI	1/2"	1/2"		ROUO
551HB0005				
Material : C.S. ASTM A105				
Component : PLUG ROUND BAR STOCK L=75 MM (3")				
Codes : ASME B16.11				
Ends : P.E.				
Note : FITTINGS SHALL COMPLY WITH JOB SPEC 52A2				

CONC. RED.	3"	24"	SCH. STD	CRE
551RF0001				
Material : C.S. ASTM A234 WPB				
Component : CONCENTRIC REDUCER				
Codes : ASME B16.9				
Manufact. : SMLS				
Ends : B.W.				
Note : FITTINGS SHALL COMPLY WITH JOB SPEC 52A2				

CONC. RED.	30"	36"	SCH. STD	CRE
551RF0002				
Material : C.S. ASTM A234 WPB				
Component : CONCENTRIC REDUCER				
Codes : ASME B16.9				
Manufact. : WELDED				
Ends : B.W.				
Note : FITTINGS SHALL COMPLY WITH JOB SPEC 52A2				

<u>CONC. RED.</u>	<u>30"</u>	<u>48"</u>	<u>SCH. XS</u>	<u>CREJF</u>
<u>551RF0052</u>				
Material : C.S. ASTM A234 WPB				
Component : CONCENTRIC REDUCER				
Codes : ASME B16.9				
Manufact. : WELDED				
Ends : B.W.				
Note : FITTINGS SHALL COMPLY WITH JOB SPEC 52A2				
				[*]
				[*]
				[*]
				[*]
				[*]
				[*]

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TEE 551EF0007	3"	24"	SCH. STD	TEE
Material : C.S. ASTM A234 WPB Component : TEE Codes : ASME B16.9 Manufact. : SMLS Ends : B.W. Note : FITTINGS SHALL COMPLY WITH JOB SPEC 52A2				
TEE 551EF0008	30"	36"	SCH. STD	TEE
Material : C.S. ASTM A234 WPB Component : TEE Codes : ASME B16.9 Manufact. : WELDED Ends : B.W. Note : FITTINGS SHALL COMPLY WITH JOB SPEC 52A2				
<u>TEE</u> <u>551EF0079</u>	<u>48"</u>	<u>48"</u>	SCH. XS	TEE [*]
Material : C.S. ASTM A234 WPB Component : TEE Codes : ASME B16.9 Manufact. : WELDED Ends : B.W. Note : FITTINGS SHALL COMPLY WITH JOB SPEC 52A2				[*] [*] [*] [*] [*] [*]
RED.TEE 551FB0006	1/2"	1-1/2"		TER
Material : C.S. ASTM A105 Component : REDUCER TEE Codes : ASME B16.11 Ends : S.W. Note : FITTINGS SHALL COMPLY WITH JOB SPEC 52A2 Rating : 6000#				
RED.TEE 551FB0004	2"	2"		TER
Material : C.S. ASTM A105 Component : REDUCER TEE Codes : ASME B16.11 Ends : S.W. Note : FITTINGS SHALL COMPLY WITH JOB SPEC 52A2 Rating : 3000#				

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CONC.SWAGE **1/2"** **2"** **SCH. 160** **CSA**
 551SC0008

Material : C.S. ASTM A106 GR.B
 Component : CONCENTRIC SWAGE
 Codes : MANUFACTURED TO ASTM A234
 Manufact. : SMLS
 Note : FITTINGS SHALL COMPLY WITH JOB SPEC 52A2
 Ends : **P.E.**

CONC.SWAGE **1/2"** **4"** **SCH. 160** **CSC**
 551SC0009

Material : C.S. ASTM A106 GR.B
 Component : CONCENTRIC SWAGE
 Codes : MANUFACTURED TO ASTM A234
 Manufact. : SMLS
 Note : FITTINGS SHALL COMPLY WITH JOB SPEC 52A2
 Ends : **LEB-SEP**

ECC.SWAGE **1/2"** **2"** **SCH. 160** **ESA**
 551SC0031

Material : C.S. ASTM A106 GR.B
 Component : ECCENTRIC SWAGE
 Codes : MANUFACTURED TO ASTM A234
 Manufact. : SMLS
 Note : FITTINGS SHALL COMPLY WITH JOB SPEC 52A2
 Ends : **P.E.**

ECC.SWAGE **1/2"** **4"** **SCH. 160** **ESC**
 551SC0011

Material : C.S. ASTM A106 GR.B
 Component : ECCENTRIC SWAGE
 Codes : MANUFACTURED TO ASTM A234
 Manufact. : SMLS
 Note : FITTINGS SHALL COMPLY WITH JOB SPEC 52A2
 Ends : **LEB-SEP**

ELBOLET BW **3"** **36"** **SCH. STD** **ELBBW**
 551WB0001

Material : C.S. ASTM A105
 Component : ELBOLET
 Codes : MSS SP97
 Ends : **B.W.**
 Note : FITTINGS SHALL COMPLY WITH JOB SPEC 52A2

* Client codes only, not including sizes

Contract N.: **XX**
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ELBOLET SW **1/2"** **36"** **ELBS**
 551LB0017

Material : C.S. ASTM A105
 Component : ELBOLET
 Codes : MSS SP97
 Ends : **S.W.**
 Note : FITTINGS SHALL COMPLY WITH JOB SPEC 52A2
 Rating : **6000#**

ELBOLET SW **2"** **36"** **ELBS1**
 551LB0010

Material : C.S. ASTM A105
 Component : ELBOLET
 Codes : MSS SP97
 Ends : **S.W.**
 Note : FITTINGS SHALL COMPLY WITH JOB SPEC 52A2
 Rating : **3000#**

SOCKOLET **1/2"** **36"** **SOL**
 551LB0018

Material : C.S. ASTM A105
 Component : SOCKOLET
 Codes : MSS SP97
 Ends : **S.W.**
 Note : FITTINGS SHALL COMPLY WITH JOB SPEC 52A2
 Rating : **6000#**

SOCKOLET **2"** **48"** **SOL1** [*]
 551LB0011

Material : C.S. ASTM A105
 Component : SOCKOLET
 Codes : MSS SP97
 Ends : **S.W.**
 Note : FITTINGS SHALL COMPLY WITH JOB SPEC 52A2
 Rating : **3000#**

WELDOLET **3"** **36"** **SCH. STD** **WOL**
 551WB0002

Material : C.S. ASTM A105
 Component : WELDOLET
 Codes : MSS SP97
 Ends : **B.W.**
 Note : FITTINGS SHALL COMPLY WITH JOB SPEC 52A2

* Client codes only, not including sizes

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LATROLET BW 3" 36" **SCH. STD** **LATBW**

551WB0003

Material : C.S. ASTM A105
 Component : LATROLET
 Codes : MSS SP97
 Ends : **B.W.**
 Note : FITTINGS SHALL COMPLY WITH JOB SPEC 52A2

LATROLET SW 1/2" 36" **LATS**

551LB0016

Material : C.S. ASTM A105
 Component : LATROLET
 Codes : MSS SP97
 Ends : **S.W.**
 Note : FITTINGS SHALL COMPLY WITH JOB SPEC 52A2
 Rating : **6000#**

LATROLET SW 2" 36" **LATS**

551LB0012

Material : C.S. ASTM A105
 Component : LATROLET
 Codes : MSS SP97
 Ends : **S.W.**
 Note : FITTINGS SHALL COMPLY WITH JOB SPEC 52A2
 Rating : **3000#**

FULL CPLG. 1/2" 1-1/2" **CPL**

551HB0014

Material : C.S. ASTM A105
 Component : FULL COUPLING
 Codes : ASME B16.11
 Rating : **6000#**
 Ends : **S.W.**
 Note : FITTINGS SHALL COMPLY WITH JOB SPEC 52A2

FULL CPLG. 2" 2" **CPL**

551HB0007

Material : C.S. ASTM A105
 Component : FULL COUPLING
 Codes : ASME B16.11
 Rating : **3000#**
 Ends : **S.W.**
 Note : FITTINGS SHALL COMPLY WITH JOB SPEC 52A2

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TEMP. CONIC. **30"** **36"** **TCS**

592TE0002

Rating : 150#
 Codes : ASME B16.47 "B" (EX API-605)
Ends : RF
 Material : C.S. CONICAL SCREEN.
 Mesh size : 14 GA PERFORATED PLATE WITH 1/8" DIA. HOLES ON 3/16" CENTERS,
 200% OPEN AREA.

FIGURE 8 **6"** **12"** **F8F**

561FP0002

Material : ASTM A516 GR.70
 Codes : ASME B16.48
Rating : 150#
Ends : RF
 Face finish : ASME B16.5
 Note : FLANGES SHALL COMPLY WITH JOB SPECS 50A2 AND 52A2

PADDLE BLIND **1"** **4"** **PBL**

561PP0003

Material : ASTM A516 GR.70
 Codes : ASME B16.48
Rating : 150#
Ends : RF
 Face finish : ASME B16.5
 Note : FLANGES SHALL COMPLY WITH JOB SPECS 50A2 AND 52A2

PADDLE BLIND **14"** **24"** **PBL**

561PP0003

Material : ASTM A516 GR.70
 Codes : ASME B16.48
Rating : 150#
Ends : RF
 Face finish : ASME B16.5
 Note : FLANGES SHALL COMPLY WITH JOB SPECS 50A2 AND 52A2

PAD.B16.47/B **30"** **36"** **PAD7E**

561PP0011

Material : ASTM A516 GR.70
 Codes : ASME B16.47 "B" (EX API-605)
Rating : 150#
Ends : RF
 Note : FLANGES SHALL COMPLY WITH JOB SPECS 50A2 AND 52A2

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DRIP RING 561DP0008	1"	12"	DRIP
Material : ASTM A516 GR.70 Codes : ASME B16.48 Rating : 150# Ends : RF Face finish : ASME B16.5 Hole on body : HOLE 3/4" SOCKET WELD Note : FLANGES SHALL COMPLY WITH JOB SPECS 50A2 AND 52A2			
SPACER RING 561RP0003	1"	4"	SPA
Material : ASTM A516 GR.70 Codes : ASME B16.48 Rating : 150# Ends : RF Face finish : ASME B16.5 Note : FLANGES SHALL COMPLY WITH JOB SPECS 50A2 AND 52A2			
SPACER RING 561RP0003	14"	24"	SPA
Material : ASTM A516 GR.70 Codes : ASME B16.48 Rating : 150# Ends : RF Face finish : ASME B16.5 Note : FLANGES SHALL COMPLY WITH JOB SPECS 50A2 AND 52A2			
SPA.R.47/B 561RP0011	30"	36"	SPA7B
Material : ASTM A516 GR.70 Codes : ASME B16.47 "B" (EX API-605) Rating : 150# Ends : RF Note : FLANGES SHALL COMPLY WITH JOB SPECS 50A2 AND 52A2			
STUD BOLTS 572SC0002	1/2"	4"	STU
Material : ASTM A193 GR.B7 / WITH (2) HEAVY HEX NUTS ASTM A194 GR.2H Thr'd Code : ANSI B18.2.1 & B18.2.2 Note : BOLTING SHALL COMPLY WITH JOB SPEC 52A3			

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GASK.16.47/B 30" 48" **GA1** [*]
 574SC0001

Material : SPIRAL WOUND SS.304/GRAPHITE
 Codes : GASKET DIMENSIONS PER ASME B16.20 ; FLANGES DIMENSIONS PER ASME B16.47 "B" (API-605)
 Thickness : 3.2 MM (1/8")
Rating : 150#
 Ring Out/In : 3.2 MM (1/8") THK. OUTER C.S. RING / INNER SS.304 RING
 Note : GASKETS SHALL COMPLY WITH JOB SPEC 52A3. GASKETS TO BE SUPPLIED W/O TAPE, STRING OR OTHER WRAPPING AROUND SPIRAL WINDING.
Ends : RF

GASK.16.47/A 30" 36" **GA2**
 574SC0002

Material : SPIRAL WOUND SS.304/GRAPHITE
 Codes : GASKET DIMENSIONS PER ASME B16.20 ; FLANGES DIMENSIONS PER ASME B16.47 "A" (MSS-SP44)
 Thickness : 3.2 MM (1/8")
Rating : 150#
 Ring Out/In : 3.2 MM (1/8") THK. OUTER C.S. RING / INNER SS.304 RING
 Note : GASKETS SHALL COMPLY WITH JOB SPEC 52A3. GASKETS TO BE SUPPLIED W/O TAPE, STRING OR OTHER WRAPPING AROUND SPIRAL WINDING.
Ends : RF

GASKET 1/2" 24" **GAS**
 574SA0001

Material : SPIRAL WOUND SS.304/GRAPHITE
 Codes : DIMENSIONS PER ASME B16.20
 Thickness : 3.2 MM (1/8")
Rating : 150#
 Ring Out/In : 3.2 MM (1/8") THK. OUTER C.S. RING
 Note : GASKETS SHALL COMPLY WITH JOB SPEC 52A3. GASKETS TO BE SUPPLIED W/O TAPE, STRING OR OTHER WRAPPING AROUND SPIRAL WINDING.
Ends : RF

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General Notes:

- 1.) Use Extended Body Gate Valves, Threaded Outlet, For Branches Not In Process Flow (Such As Vent, Drain, PI, Orifice Taps Etc. Connections). Piping Downstream, If Any, Shall Usually Be In Accord With The Applicable Instrument Piping Material Specification. If No Piping, Insert A Plug In The Threaded Outlet. Other Valves, Such As SW x T Should Only Be Used When Spaced Restrictions Are Encountered.
- 2.) Det 'GATST' To Be Use Only Where Extended Body Valves Do Not Fit The Design Situation.
- 3.) Dets 'GAF' And 'GAF1' Are To Be Used At Flanged Equipment Or When Required At Instrument.
- 4.) Globe Valves Shall Be Sized Such That Its Minimum % Open Is Not Less Than 20%. These Valves Shall Not Be Subject To Pressure Differential Greater Than 30% Of Its Cold Working Pressure.
- 5.) Check Valves When Installed In The Horizontal Position Shall Be Bonnet Cover Up & Those Install In The Vertical Position Shall Be Flow Up Only.
- 6.) Gear Operated Valves Shall Be Used When Indicated On The EFD'S.
- 7.) A Minimum Of 0.10" Corrosion Allowance May Be Used To Substantiate Wall Schedule Selection For Boderline Cases. Such Cases Must Be Approved By The Project Engineering Manager And A Remark Added To The Line List.
- 8.) Heat Treatment Noted Is For General Fabrication. Weld Size For Fillet And/Or Branch Connection Shall Govern Per ASME B31.3 Para. 331.1.3. Heat Treatment For Bends Shall Be Per ASME B31.3 Para. 332.4.1 & 332.4.2 And Specs 52A5 And 52A6 Accordingly.
- 9.) Typical Hydrotest Limiting Factor Is 1.5 x ASME Class Rating Cold Working Pressure Exception To This Include:
 * 1.1 x CWP For Closed Valves (Test Against Seat. This Method Is Not Preferred.)
 * Check Manufactures Data For Ball Valves.
- 10.) Pipe And Components > 1/2" Thickness May Require Impact Tested Materials When The Minimum Design Metal Temperature Is Below 100F Per ASME B31.3 Para. 323.2.2.
- 11.) All Fabrication Shall Comply With 52A1.
- 12.) Pipe Support And Spring Hangers Shall Comply With 59A2 And 59A3 Respectively.
- 13.) 'BEP' Nipples Shall Be Cut From Pipe.
- 14.) Det 'PIPP' To Be Used With SW x T Valves Only.
- 15.) The Crotch Thickness Of The Branch Outlet Of Buttweld Tees Shall Be Shall Be No Less Than 150% Of The Nominal Wall Thickness Of The Tee. The Crotch Radius Of The Branch Outlet Of Buttweld Tees Shall Be No Less Than 12.5% Of The Branch Outlet OD.
- 16.) Use Union Or Coupling To Join Pipe. Flanged Joint To Be Used Only Where Indicated On EFD'S.
- 17.) Couplings Shall Not Be Used For Branch Connections Use Inline Only.
- 18.) Use Flat Face Valve, Flange & Full Face Gasket To Mate With Flat Face Nozzles Only.
- 19.) Flanges Shall Not Be Insulated.
- 20.) Temperature Instrument Connection Shall Be NPS 1-1/2" Flanged.
- 21.) Pressure Instrument Connection Shall Be NPS 3/4" Socket-weld.
- 22.) In Sizes Above NPS 24", Flanges In Accord With ASME B16.47 Series B (API-605) Preferred. Where Required To Match

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Equipment Or Wafer Style Valves, Flanges Per ASME B16.47 Series A (MSS-SP44) May Be Used.

23.) Branch Connections Should Follow The Guidelines Of Job Spec 52B2 And The Attachment Unless Specifically Overriden By The Pipe Stress Engineer.

24.) CORR-A-SEAL / GRAPHONICS Gaskets Shall Be Used For Flat Face Flanges.

25.) Concentric & Eccentric Reducers Are Limited To 2 Nominal Diameter Size Reductions Without Piping Engineer Approval.

26.) Remove Temporary Strainers After Flushing.

END OF DOCUMENT

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ATTACHMENT "A"

REINFORCEMENT CHART																				
APPLICABLE TO PIPE SPECIFICATION (S) : A2																				
MATERIAL (S) : CARBON STEEL, SMLS, ASTM A106 GR. B												P/SE :		C.A. : 0.125"						
CARBON STEEL, EFW, ASTM, A672 GR. C70 CL.12																				
DESIGN LIMIT (S) : 285 PSIG AT -20F TO 100F; 65 PSIG AT 850F MAX. TEMP.																				
NOM. SIZE	NOM. THICK.	NOMINAL SIZE OF BRANCH CONNECTION (INCHES)																		
		1/2	3/4	1	1 1/2	2	3	4	6	8	10	12	14	16	18	20	24	30/36	48	
1/2	160	T																		
3/4	160	RT	T																	
1	160	RT	RT	T																
1 1/2	160	RT	RT	RT	T															
2	XS	RT	RT	RT	RT	T														
3	STD	SK	SK	SK	SK	SK	T													
4	STD	SK	SK	SK	SK	SK	W	T												
6	STD	SK	SK	SK	SK	SK	W	W	T											
8	STD	SK	SK	SK	SK	SK	W	W	W	T										
10	STD	SK	SK	SK	SK	SK	W	W	W	W	T									
12	STD	SK	SK	SK	SK	SK	W	W	W	W	W	T								
14	STD	SK	SK	SK	SK	SK	W	W	W	W	W	W	T							
16	STD	SK	SK	SK	SK	SK	W	W	W	W	W	W	P2	T						
18	STD	SK	SK	SK	SK	SK	W	W	W	W	W	W	P2	P3	T					
20	STD	SK	SK	SK	SK	SK	W	W	W	W	W	W	P3	P3	P4	T				
24	STD	SK	SK	SK	SK	SK	W	W	W	W	W	W	P4	P5	P6	P6	T			
30/36	STD	SK	SK	SK	SK	SK	W	W	W	W	W	W	CA	CA	CA	CA	CA	T		
48	XS	SK	SK	SK	SK	SK	W	W	W	W	W	W	CA	CA	CA	CA	CA	CA	CA	T

LEGEND :

T = TEE
 RT = REDUCING TEE
 RE = TEE AND REDUCER OR REDUCING INSERT
 SK = SOCKOLET, SW ELBOLET OR LATROLET
 TH = THREDOLET, THD ELBOLET OR LATROLET
 W = WELDOLET, BW ELBOLET OR LATROLET
 LW = LONG WELD NECK FLANGE
 TB = TEE AND BUSHING

CA = CALCULATE
 F1 = STUB IN WITH 3/8" FILLET WELD
 P2 = STUB IN WITH 2" WIDE PAD (PAD TO BE SAME THICKNESS AS RUN SIZE)
 P3 = STUB IN WITH 3" WIDE PAD (PAD TO BE SAME THICKNESS AS RUN SIZE)
 P4 = STUB IN WITH 4" WIDE PAD (PAD TO BE SAME THICKNESS AS RUN SIZE)
 P5 = STUB IN WITH 5" WIDE PAD (PAD TO BE SAME THICKNESS AS RUN SIZE)
 P6 = STUB IN WITH 6" WIDE PAD (PAD TO BE SAME THICKNESS AS RUN SIZE)
 P7 = STUB IN WITH 7" WIDE PAD (PAD TO BE SAME THICKNESS AS RUN SIZE)

NOTE : ANY SITUATION NOT COVERED BY THE ABOVE CHART SHOULD BE BROUGHT TO THE ATTENTION OF THE ASSIGNED PIPING ENGINEER.